PACIFIC AIRMOTIVE CORPORATION

An Equal Opportunity Employer
General Offices:
2940 No. Hollywood Way
Burbank, California 91503
Phone: 849-3481

7/30

July 29, 1985
EML 123/85

Mr. Joshua Workman
Senior Water Resource
Control Engineer
California Regional Water
Quality Control Board
Los Angeles Region
107 S. Broadway, Suite 4027
Los Angeles, CA 90012-4596

Dear Mr. Workman

Subject: Pacific Airmotive - Suspected Subsurface Discharge
Aviation Jet Fuel - Emergency Cleanup

Thank you for your letter of May 15, 1985, approving Kennedy/Jenks Engineer's, "Site Cleanup Plan."

The emergency cleanup plan was initiated June 3, 1985, in conjunction with your department, Mr. D. Bacharowski, and supervised by Kennedy/Jenks personnel. The actual excavation was conducted by IT Corporation of Irvine, California, contractor license No. 137422, Class A, C33, C34, and C61. Final cleanup was completed July 9, 1985, as specified in the approved prosal.

We have enclosed the final spill cleanup report from Kennedy/Jenks Engineers for your persual.

Again, thank you for your cooperation enabling a speedy resolution to this problem.

If you have any questions concerning this matter, please contact me at (609) 825-6000, or Bruce Wettstein at (818) 842-5171.

Sincerely,

Christopher M. Andrews

Christopher M. Andrews
V. P. Engineering, Quality
Control, and Facilities

DAVID A. BACHAROWSKI

JUL 30 1985

CMA:ds
Enclosures

cc: B. Wettstein - General Manager PAC
N. Lerner/T. Kalinowski - Kennedy/Jenks Engineers

Kennedy/Jenks Engineers

657 Howard Street
San Francisco, California 94105
415-362-6065

26 July 1985

Mr. Christopher M. Andrews
Manager - Engineering
Quality Control and Facilities
Airwork Corporation
Millville, NJ 08332

Subject: Report on Spill Cleanup Activities at Pacific Airmotive Corporation, Burbank California (K/J 4101)

Dear Mr. Andrews:

The soil remediation work plan outlined in our Phase II Detailed Site Assessment Report, dated 12 April 1985, has been completed. Approximately 980 cubic yards of soil containing jet fuel has been excavated by IT Corporation (IT) and disposed of at the IT Imperial Valley Class II Disposal Facility, which is permitted for designated wastes. A review of remediation activities is presented below following a summary of previous site investigations.

BACKGROUND

Pacific Airmotive Corporation (PAC) services jet engines for the aviation industry. Before engines leave the facility, they are operated in a test cell while their performance is monitored. Two buried fuel tanks located near the test cells supplied fuel to the engines during performance testing. In December of 1983 as part of the corporate environmental policy to remove all underground tanks unless they were vaulted, two storage tanks supplying fuel to the test cells were removed.

On 23 October 1984, Mr. Christopher Andrews, Vice President Engineering Quality Control and Facilities, reported to the Los Angeles Regional Water Quality Control Board (RWQCB) that an accidental discharge of jet fuel had occurred in the vicinity of the test cells. Subsequently, PAC contracted for technical support services from Kennedy/Jenks Engineers to confirm and investigate the extent of the suspected leakage. A site investigation to determine the source of jet fuel in the soil identified one run of fuel piping as the probable source. This piping appeared to have been associated with the original buried tanks that were removed in December 1983. This piping was subsequently removed. To mitigate future occurrences of subsurface leakage at the test cells, a new fuel supply line was rerouted above ground.

PRELIMINARY SITE ASSESSMENT

A meeting was arranged at the PAC site on 23 October 1985 and attended by Mr. Christopher Andrews of PAC, Dr. Thomas Kalinowski of Kennedy/Jenks Engineers, and Mr. David Bacharowski, RWQCB staff member. During the meeting, a site review was conducted and the source of the leakage appeared to be limited to the area adjacent to the pump station to the east of Test Cell No. 4.

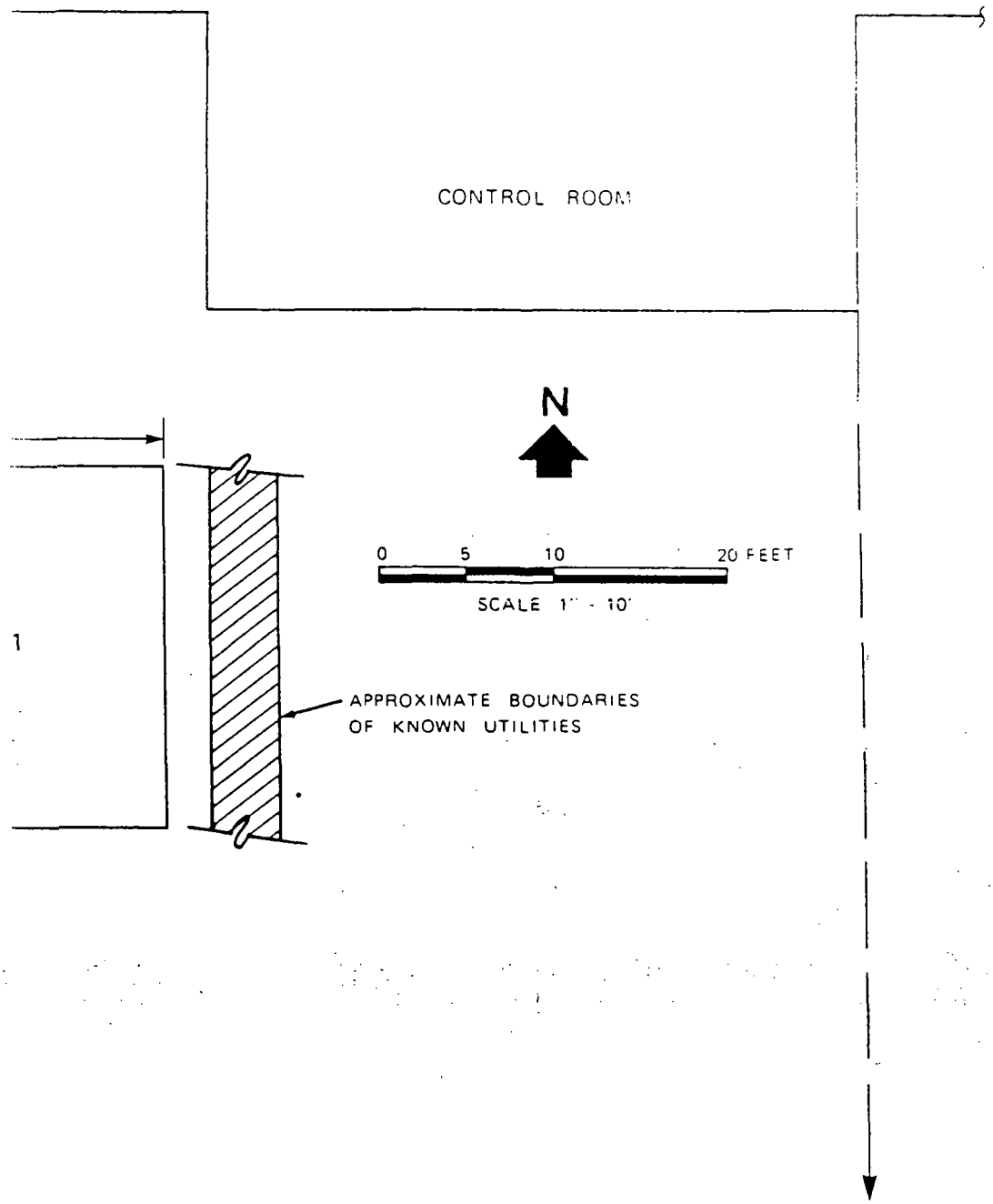
As described in our Phase I Preliminary Contamination Assessment Report dated 11 December 1984, a preliminary site investigation was conducted by Kennedy/Jenks Engineers on 19 and 20 November 1984. As part of this investigation, trenches were excavated with a backhoe, and an organic vapor field survey of excavated soils indicated that there were two separate areas with elevated organic compound concentrations in the soil. Subsequent gas chromatography (GC) scans of soil samples from these areas and of jet fuel samples obtained from the PAC supply system confirmed the presence of jet fuel in these soils.

DETAILED SITE ASSESSMENT AND SPILL CLEANUP PLAN

Seven exploratory soil borings were drilled during 18 through 21 March 1985. The results of an organic vapor field survey and confirmatory laboratory analysis of soil samples collected from the borings were used to establish the limits of excavation proposed in our Phase II Report recommending remedial actions.

The cleanup objective, as presented in the Phase II Report, was to minimize the further spread of jet fuel by excavating soil in the two areas (designated Areas 1 and 2) where high jet fuel concentrations were found. The areal and vertical limits of both excavation areas were determined by cost-effectiveness considerations, as well as limiting residual fuel concentrations in remaining soil. The physical constraints imposed by nearby facility buildings and utility lines on the excavation limits is discussed in detail in the Phase II Report. The maximum excavation depths proposed were 25 feet for Area 1, and 25 to 30 feet for Area 2, depending on field measurements of soil organic vapor concentrations measured during the excavation of Area 2.

The RWQCB staff, in a letter, dated 15 May 1985, approved the proposed work plan and the specified excavation depths, but



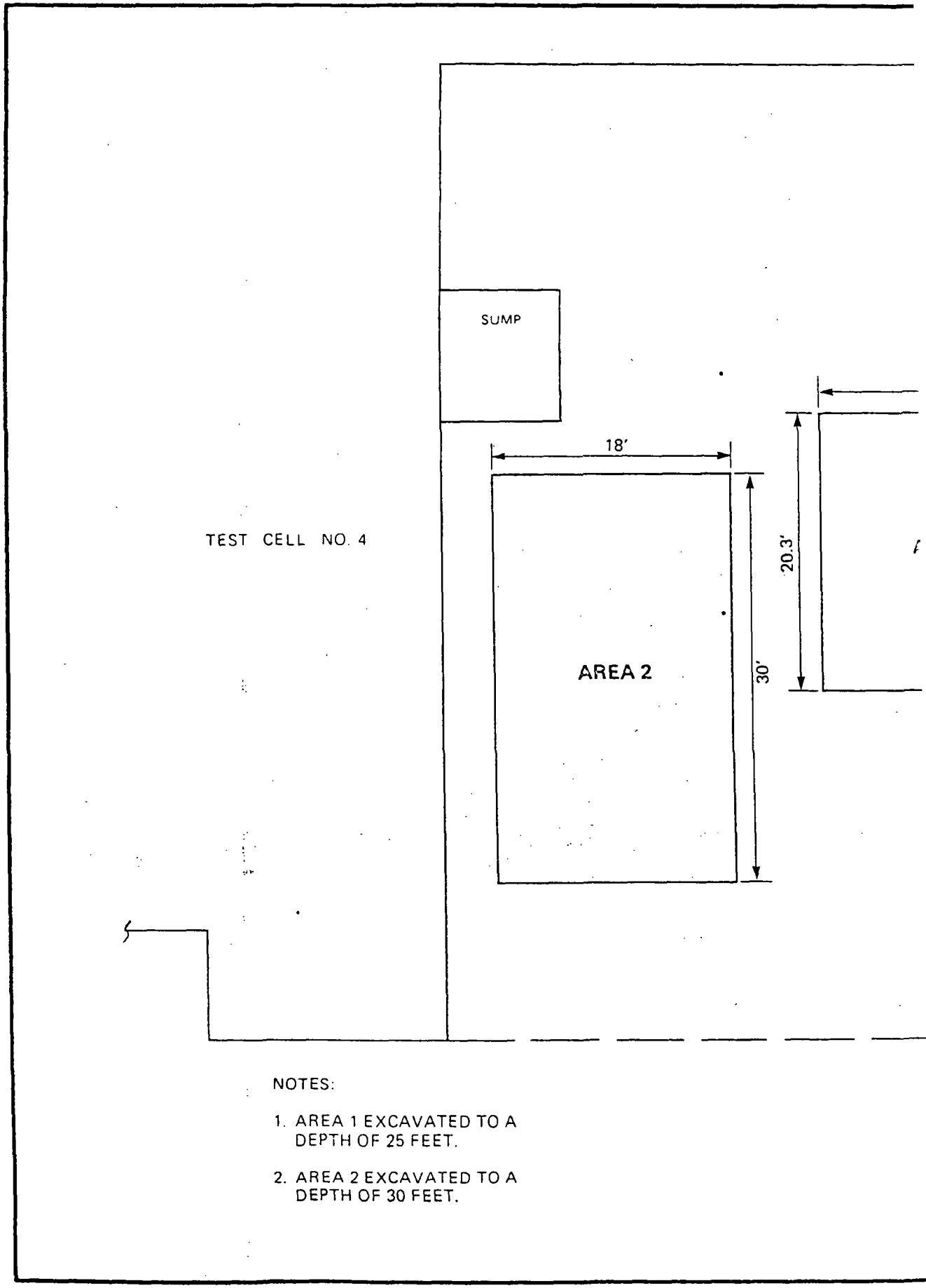
Kennedy/Jenks Engineers

Pacific Airmotive Corporation
Burbank, CA

Approximate Location of Excavated Areas

K/J 4101
July 1985

Figure 1



NOTES:

1. AREA 1 EXCAVATED TO A DEPTH OF 25 FEET.
2. AREA 2 EXCAVATED TO A DEPTH OF 30 FEET.

TABLE 1

SUMMARY OF LABORATORY ANALYSIS OF
EXCAVATION FLOOR SOIL SAMPLES FROM AREA [illegible]

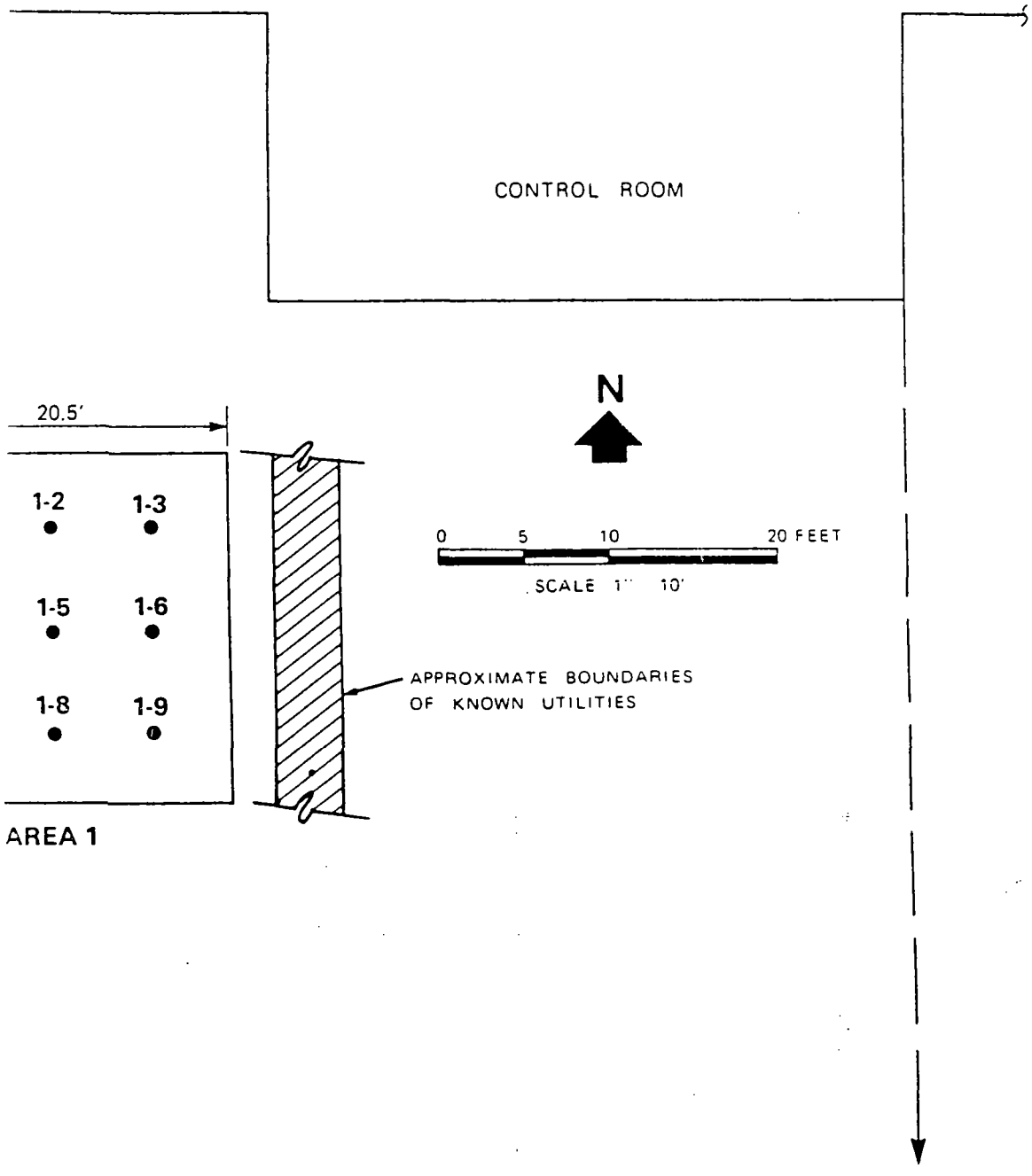
PACIFIC AIRMOTIVE CORPORATION, HONOLULU [illegible]

Sample No.[b]	Concentration in Soil[c] (mg/kg)
1-1	17
1-2	10
1-3	18
1-4	17
1-5	13
1-6	200
1-7	75
1-8	140
1-9	<5

[a] All samples collected from a depth below the ground surface of approximately 26 feet.

[b] Refer to Figure 2 for sample locations.

[c] Analysis by gas chromatography scan using flame ionization detection (GC/FID), wet weight basis.



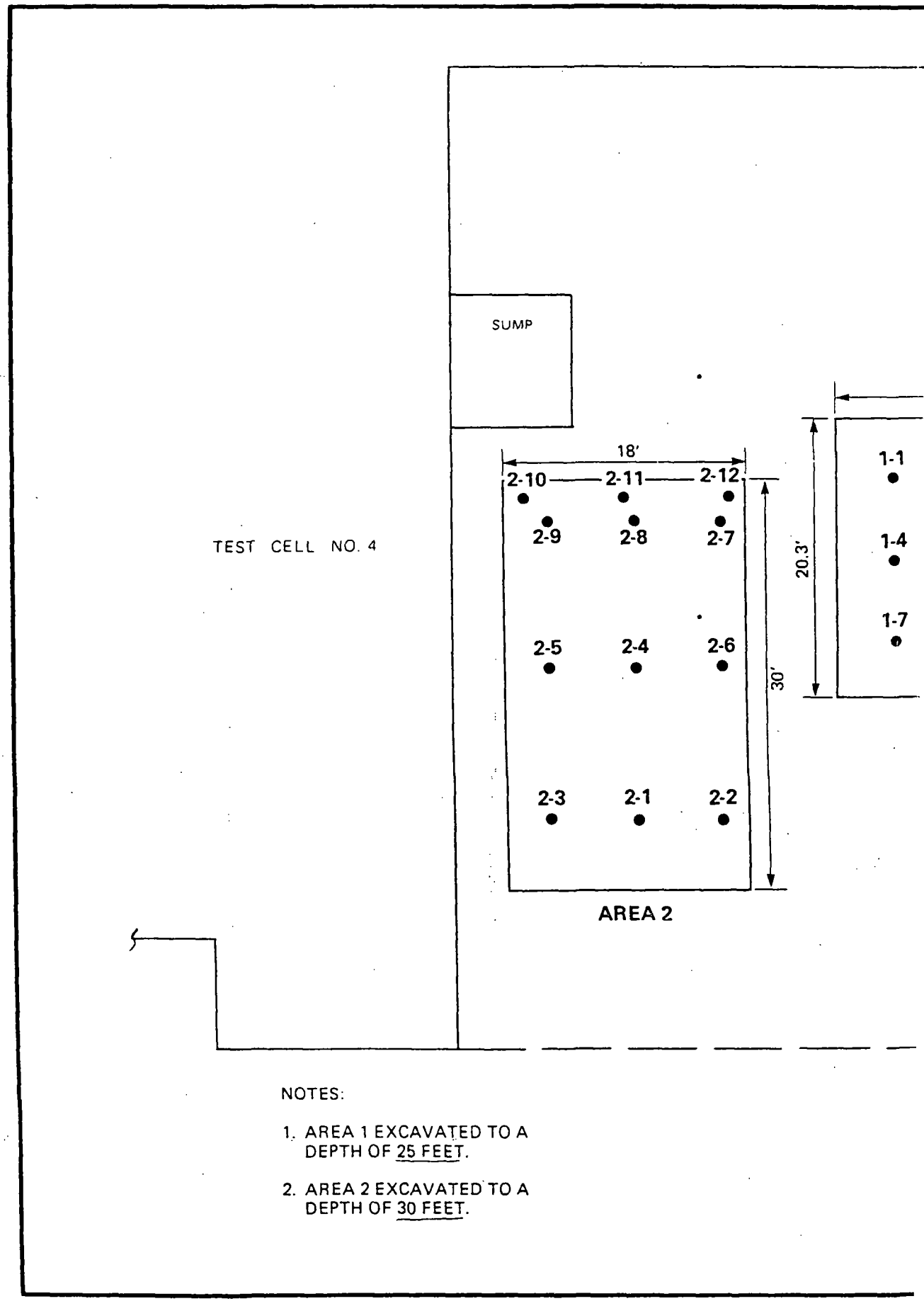
Kennedy/Jenks Engineers

Pacific Airmotive Corporation
Burbank, CA

Approximate Location of Soil Samples

K/J 4101
July 1985

Figure 2



NOTES:

1. AREA 1 EXCAVATED TO A DEPTH OF 25 FEET.
2. AREA 2 EXCAVATED TO A DEPTH OF 30 FEET.

depths. Headspace analyses of samples collected when the excavation reached 25 feet, shown in Table 2, indicate that elevated soil concentrations of jet fuel were limited to the northwest corner of the excavation (refer to Figure 2 for sample locations). Mr. Bacharowski was again present during these headspace analyses and concurred with this conclusion. Based on the continued presence of jet fuel in excavated material, excavation was directed to continue to the maximum 30 foot depth, as specified.

Because of the extensive depth of excavation, excavating the final 5 feet of Area 2 was accomplished with the aid of a small excavator placed on the floor of the excavation. Excavated material was pushed from the north end of the pit to the southern end by the small excavator inside the pit. A large excavator, located above the pit, then lifted the material to the surface. Due to this excavation method, the excavation floor was covered by material from the northern half of the excavation to varying depths rather than native, undisturbed material. Digging through the sandy soil left at the base of the excavation proved difficult, as sample hole sidewalls continually caved due to the cohesionless nature of the disturbed soil. Therefore, only a limited number of soil samples considered to be representative of the excavation floor were collected from Area 2 for laboratory analysis.

The results of laboratory analysis of soil samples collected below the 30-foot final depth of excavation are reported in Table 3. Samples 2-8, 2-9, and 2-10 confirm the results of the headspace analysis of soil samples collected at shallower depths, presented in Table 2, which indicate that jet fuel was limited to the northwest corner of Area 2. At the time that excavation of Area 2 was completed to a depth of 30 feet, it was recognized that soil containing jet fuel was still present at the base of the excavation in the northwest corner. However, excavation was terminated at this depth in conformance with the approved Spill Cleanup Plan and with the concurrence of Mr. Bacharowski of the RWQCB staff.

The excavations were completed on 25 June 1985 for Area 1 and 29 June 1985 for Area 2. Backfilling of the two areas began immediately after excavation of Area 2 was completed. Our geotechnical consultant, Dames & Moore, judged the backfill material imported to the site to be non-expansive, free of organic

TABLE 2

SUMMARY OF HEADSPACE ANALYSIS FOR
ORGANIC VAPOR CONCENTRATIONS IN AREA 2 SOIL SAMPLES

PACIFIC AIRMOTIVE CORPORATION, BURBANK, CA (K/J 4101)

Approximate Sample Location[a]	Soil Sample Headspace Organic Vapor Concentration (ppm)[b]	Sample Depth Below Ground Surface (Feet)
2-3	10	24
2-6	5-17	27
2-10	>1,000	24
2-12	30-50	19

[a] Refer to Figure 2 for soil sample locations.

[b] Soil sample were placed in glass containers and headspace vapors were analyzed with a Foxboro OVA-124. Background vapor concentration varied between 2 to 3.4 ppm. Organic vapor concentrations are parts per million (ppm) by volume as methane.

TABLE 3

LABORATORY ANALYSIS OF
EXCAVATION FLOOR SOIL SAMPLES FROM AREA 2

PACIFIC AIRMOTIVE CORPORATION, BURBANK, CA (K/J 4101)

Sample No.[a]	Sample Depth Below Ground Surface (Feet)	Jet Fuel Concentration in Soil[b] (mg/kg)
2-1	31	8
2-2	31	<5
2-3	31	<5
2-4	31	180
2-5	31	1,400
2-6	31	<5
2-7	31	<5
2-8	31	10,300
2-9	31	6,100
2-10	32	8,200
2-11	32	4
2-12	30	1

[a] Refer to Figure 2 for sample locations.

[b] Analysis by gas chromatography scan using flame ionization detection (GC/FID), wet weight basis.

matter, and having a satisfactory grain size distribution. Composition was tested by Dames & Moore to verify that the specified minimum was achieved (90% of optimum below 3 feet and 95% above). When backfilling was completed to within two feet of the ground surface, the sheet piling, all of which was left in place, was cut off. Backfilling was then continued to match the existing native soil elevation and was completed on 9 July 1985. Resurfacing of the entire area east of Test Cell No. 4 with asphaltic concrete is planned to further limit the leaching of residual jet fuel due to infiltration by surface runoff.

CONCLUSIONS

Except for repaving operations, which are currently under negotiation, the proposed spill cleanup program has been completed at PAC. We recommend that this report summarizing spill cleanup activities be reviewed with the Regional Water Quality Control Board staff. If you have questions regarding this report, do not hesitate to call.

Very truly yours,

KENNEDY/JENKS ENGINEERS, INC.

Noel Lerner

Noel M. Lerner
Project Manager

Thomas W. Kalinowski

Thomas W. Kalinowski, Sc.D.
Assistant Manager
Industrial Services Group

NML/TWK:llv
Attachments

Attachment to Kennedy/Jenks Engineers'
letter to Airwork Corporation
dated 26 July 1985

ATTACHMENT A

REGIONAL WATER QUALITY CONTROL BOARD CORRESPONDENCE

GEORGE DEUKMEJIAN, *Governor*

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—
LOS ANGELES REGION
107 SOUTH BROADWAY, SUITE 4027
LOS ANGELES, CALIFORNIA 90012-4596
(213) 620-4460

May 15, 1985

Mr. Christopher M. Andrews
Manager-Engineering Quality
Control & Facilities
Airwork Corporation
Millville, N.J. 08332

UNDERGROUND TANK PIPELINE LEAK-PACIFIC AIRMOTIVE CORP.
(File No. 83-8) (ID #915050061)

Reference is made to your letter dated April 13, 1985, transmitting Kennedy/Jenks Engs. Phase II-Detailed Site Assessment report and the proposed Remedial Action Plan for your facility located at 2940 N. Hollywood Way, Burbank, CA.

We have reviewed Phase I and Phase II Site Assessment results which identified two (2) localized contamination plumes (jet fuel) extending to a vertical depth of between 25 and 30 feet below grade, in soils adjacent to Test Cell #4.

We have also reviewed your Site Cleanup Plan and have no objections to you implementing it, provided that all work is completed as specified in your proposal, and that a soil sampling and analysis program is conducted at the depths of each excavation (Area 1 and Area 2), as discussed in a telephone conversation between Mr. Noel Lerner of Kennedy/Jenks Engs. and Mr. David Bacharowski of this Boards staff on May 7, 1985.

Please notify us prior to the date you plan to begin work onsite, so we can schedule an inspector to be present.

If you have any questions concerning this matter, please contact me at (213) 620-5662 or Mr. David Bacharowski at (213) 620-5647.

Joshua M Workman

JOSHUA M. WORKMAN
Senior Water Resource
Colntrol Engineer

DAB:pag

cc: Mr. Noel Lerner, Project Engineer,
Kennedy/Jenks Engs.
Mr. B. Wettstein, Pacific Airmotive Corp.

Attachment to Kennedy/Jenks Engineers'
letter to Airwork Corporation
dated 26 July 1985

ATTACHMENT B

KENNEDY/JENKS ENGINEERS LABORATORY DIVISION
SOIL ANALYSIS REPORTS FOR SPILL CLEANUP PROGRAM

Soil Analysis Report

Kennedy/Jenks Engineers
Laboratory Division
657 Howard Street
San Francisco, California 94105
415-362-6065

Received 6/27/85
Reported 7/8/85

For Kennedy/Jenks Engineers
Attention Noel M. Lerner
Address 657 Howard Street
San Francisco, CA 94105

(K/J 4101)

Lab. No.		852279	852280	852281
Source	Pacific Airmotive Corp. Burbank, CA	No. 1-1 Depth 26 ft	No. 1-2 Depth 26 ft	No. 1-3 Depth 26 ft
Date Collected		6/25/85	6/25/85	6/25/85
Time Collected		1524	1520	1515
Collected by		Kennedy/Jenks Engineers		

Analysis (1)	Units	Analytical Results		
Jet Fuel	mg/Kg	17	10	18

Comments:

(1) Analysis of extract by gas chromatography, using flame ionization detection. A sample of jet fuel supplied by the client was used as comparison standard. Results reported in milligrams per kilogram, wet weight (as received) basis.

Analyst NI, AD Manager Everett R. Smith

Soil Analysis Report

Kennedy/Jenks Engineers
Laboratory Division
657 Howard Street
San Francisco, California 94105
415-362-6065

Received 6/27/85
Reported 7/8/85

For Kennedy/Jenks Engineers
Attention Noel M. Lerner
Address 657 Howard Street
San Francisco, CA 94105

(K/J 4101)

Lab. No.	852282	852283	852284
Source Pacific Airmotive Corp. Burbank, CA	No. 1-4 Depth 26 ft	No. 1-5 Depth 26 ft	No. 1-6 Depth 26 ft
Date Collected	6/25/85	6/25/85	6/25/85
Time Collected	1524	1540	1512
Collected by	Kennedy/Jenks Engineers		

Analysis (1)	Units	Analytical Results		
Jet Fuel	mg/Kg	17	13	200

Comments:

(1) Analysis of extract by gas chromatography, using flame ionization detection. A sample of jet fuel supplied by the client was used as comparison standard. Results reported in milligrams per kilogram, wet weight (as received) basis.

Analyst NI, AD Manager Leverett R. Smith

Soil Analysis Report

Kennedy/Jenks Engineers
Laboratory Division
657 Howard Street
San Francisco, California 94105
415-362-6065

Received 6/27/85
Reported 7/8/85

For Kennedy/Jenks Engineers
Attention Noel M. Lerner
Address 657 Howard Street
San Francisco, CA 94105

(K/J 4101)

Lab. No.		852285	852286	852287
Source		No. 1-7	No. 1-8	No. 1-9
Pacific Airmotive Corp. Burbank, CA		Depth 26 ft	Depth 26 ft	Depth 26 ft
Date Collected		6/25/85	6/25/85	6/25/85
Time Collected		1530	1535	1525
Collected by		Kennedy/Jenks Engineers		
Analysis (1)	**Units**	**Analytical Results**		
Jet Fuel	mg/Kg	75	140	<5

Comments:

(1) Analysis of extract by gas chromatography, using flame ionization detection. A sample of jet fuel supplied by the client was used as comparison standard. Results reported in milligrams per kilogram, wet weight (as received) basis.

Analyst NI, AD Manager Everett R. Smith

Soil Analysis Report

Kennedy/Jenks Engineers
Laboratory Division
657 Howard Street
San Francisco, California 94105
415-362-6065

Received 7/2/85
Reported 7/8/85

For Kennedy/Jenks Engineers
Attention Noel M. Lerner
Address 657 Howard Street
San Francisco, CA 94105

(K/J 4101)

Lab. No.	852321	852322	852323
Source Pacific Airmotive Corp. Burbank, CA	No. 2-1 Depth 31 ft	No. 2-2 Depth 32 ft	No. 2-3 Depth 31 ft
Date Collected	6/29/85	6/29/85	6/29/85
Time Collected	1204	1206	1208
Collected by	Kennedy/Jenks Engineers		

Analysis (1)	Units	Analytical Results		
Jet Fuel	mg/Kg	8	<5	<5

Comments:

(1) Analysis of extract by gas chromatography, using flame ionization detection. A sample of jet fuel supplied by the client was used as comparison standard. Results reported in milligrams per kilogram, wet weight (as received) basis.

Analyst NI, AD Manager Leverett R. Smith

Soil Analysis Report

Kennedy/Jenks Engineers
Laboratory Division
657 Howard Street
San Francisco, California 94105
415-362-6065

Received 7/2/85
Reported 7/8/85

For Kennedy/Jenks Engineers
Attention Noel M. Lerner
Address 657 Howard Street
San Francisco, CA 94105

(K/J 4101)

Lab. No.		852324	852325	852326
Source		No. 2-4	No. 2-5	No. 2-6
Pacific Airmotive Corp. Burbank, CA		Depth 31 ft	Depth 31 ft	Depth 31 ft
Date Collected		6/29/85	6/29/85	6/29/85
Time Collected		1214	1218	1220
Collected by		Kennedy/Jenks Engineers		
Analysis (1)	**Units**	**Analytical Results**		
Jet Fuel	mg/Kg	180	1400	<5

Comments:

(1) Analysis of extract by gas chromatography, using flame ionization detection. A sample of jet fuel supplied by the client was used as comparison standard. Results reported in milligrams per kilogram, wet weight (as received) basis.

Analyst NI, AD Manager Leverett R. Smith

Soil Analysis Report

Kennedy/Jenks Engineers
Laboratory Division
657 Howard Street
San Francisco, California 94105
415-362-6065

Received 7/2/85
Reported 7/8/85

For Kennedy/Jenks Engineers
Attention Noel M. Lerner
Address 657 Howard Street
San Francisco, CA 94105

(K/J 4101)

Lab. No.	852327	852328	852329
Source Pacific Airmotive Corp. Burbank, CA	No. 2-7 Depth 31 ft	No. 2-8 Depth 31 ft	No. 2-9 Depth 31 ft
Date Collected	6/29/85	6/29/85	6/29/85
Time Collected	1225	1230	1235
Collected by	Kennedy/Jenks Engineers		

Analysis (1)	Units	Analytical Results		
Jet Fuel	mg/Kg	<5	10,300	6,100

Comments:

(1) Analysis of extract by gas chromatography, using flame ionization detection. A sample of jet fuel supplied by the client was used as comparison standard. Results reported in milligrams per kilogram, wet weight (as received) basis.

Analyst NI, AD Manager Leverett R. Smith

Soil Analysis Report

Kennedy/Jenks Engineers
Laboratory Division
657 Howard Street
San Francisco, California 94105
415-362-6065

Received 7/1/85
Reported 7/11/85

For Kennedy/Jenks Engineers
Attention Noel M. Lerner
Address 657 Howard Street
San Francisco, CA 94105

(K/J 4101)

Lab. No.	852309	852310	852311
Source Pacific Airmotive Corp. Burbank, CA	No. 2-10 Depth 32 ft	No. 2-11 Depth 32 ft	No. 2-12 Depth 30 ft
Date Collected	6/27/85	6/27/85	6/27/85
Time Collected	1930	1943	1940
Collected by	Kennedy/Jenks Engineers		

Analysis (1)	Units	Analytical Results		
Jet Fuel	mg/Kg	8200	4	<1

Comments:

(1) Analysis of extract by gas chromatography, using flame ionization detection. A sample of jet fuel supplied by the client was used as comparison. Results reported in milligrams per kilogram, wet weight (as received) basis.

Analyst NI, AD Manager Jerrett R. Smith

Attachment to Kennedy/Jenks Engineers'
letter to Airwork Corporation
dated 26 July 1985

ATTACHMENT C

LEGAL DESCRIPTIONS FOR EXCAVATION AREAS 1 AND 2
PREPARED BY RATTRAY AND ASSOCIATES, SANTA ANA, CA

Attachment to Kennedy/Jenks Engineers'
letter to Airwork Corporation
dated 26 July 1985

ATTACHMENT C

LEGAL DESCRIPTIONS FOR EXCAVATION AREAS 1 AND 2
PREPARED BY RATTRAY AND ASSOCIATES, SANTA ANA, CA

Those portions of Tract No. 11663, in the City of Burbank, County of Los Angeles, State of California, as per map recorded in book 257, page 36, of maps in the Office of the County Recorder of said County, described as follows:

PARCEL "A" (AREA 2)

Beginning at the southwest corner of said Tract No. 11663, thence south 88°50'14" east along the southerly boundary of said Tract No. 11663 a distance of 169.42 feet; thence north 1°04'32" east a distance of 30.50 feet; thence south 88°50'14" east 108.00 feet; thence north 1°04'32" east 53.7 feet to the true point of beginning; thence continuing north 1°04'32" east 29.9 feet; thence south 88°50'14" east 17.9 feet; thence south 1°04'32" west 29.9 feet; thence north 88°50'14" west 17.9 feet to the true point of beginning.

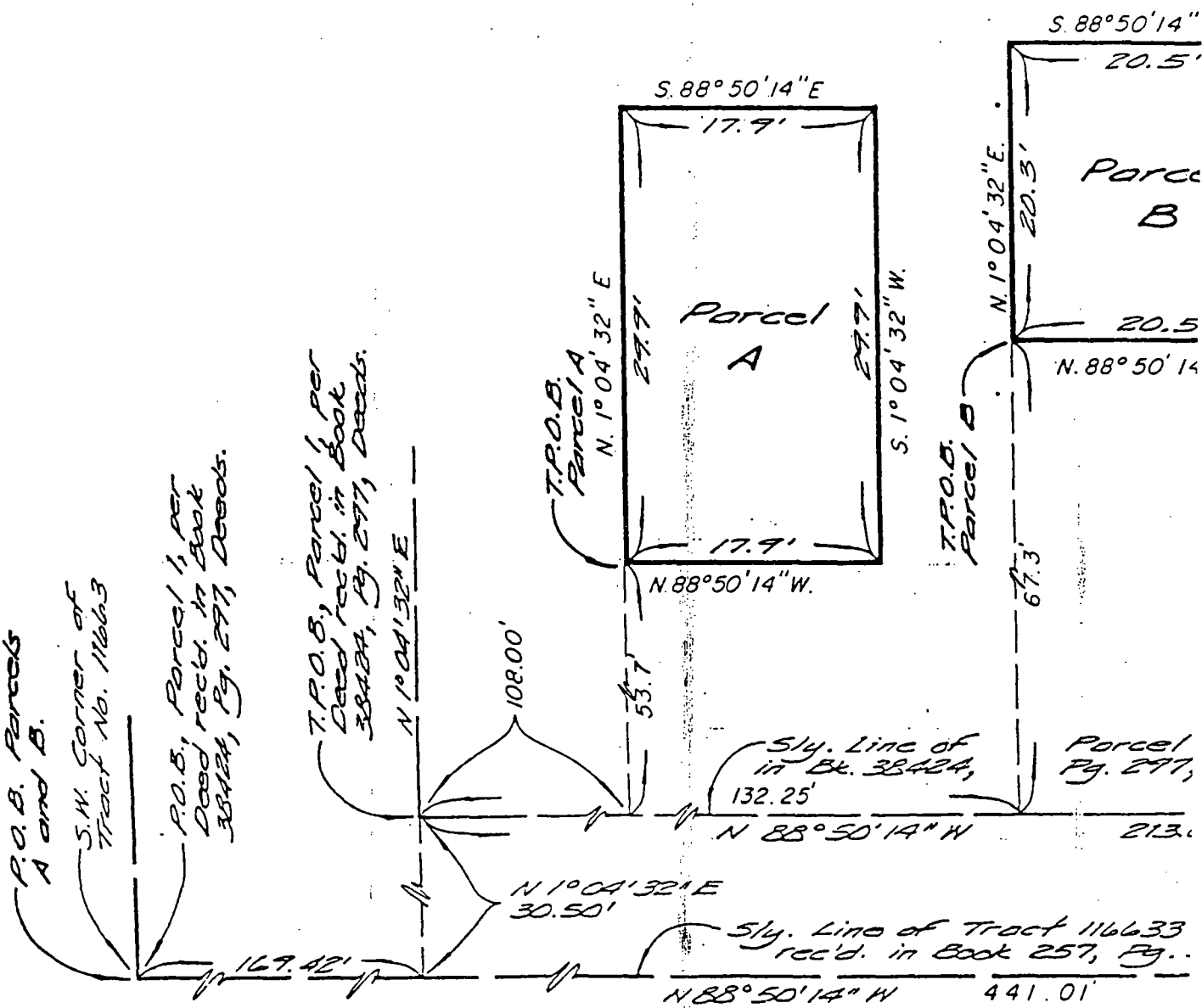
PARCEL "B" (AREA 1)

Beginning at the southwest corner of said Tract No. 11663, thence south 88°50'14" east along the southerly boundary of said Tract No. 11663 a distance of 169.42 feet; thence north 1°04'32" east a distance of 30.50 feet; thence south 88°50'14" east 132.25 feet; thence north 1°04'32" east 67.3 feet to the true point of beginning; thence continuing north 1°04'32" east 20.3 feet; thence south 88°50'14" east 20.5 feet; thence south 1°04'32" west 20.3 feet; thence north 88°50'14" west 20.5 feet to the true point of beginning.

July 12, 1985

Attachment to Kennedy/Jenks Engineers'
letter to Airwork Corporation
dated 26 July 1985

Sketch to accompany Legal Des



Description